REMARKS

This application has been reviewed in light of the Office Action dated August 7, 2006. Claims 1-50 and 53-104 remain pending. Claims 1, 3-5, 7, 11, 13-15, 20, 23, 26, 28, 33, 37, 41-43, 53, 55, 62, 65, 69, 71, 73, 74, 76, 79, 87, 93, and 98 are in independent form. Claims 98-104 have been withdrawn from consideration. Favorable reconsideration is requested.

The Office Action does not address Claim 42. However, it is understood that Claim 42 is allowed, because that claim was written in independent form in the prior-filed Amendment, in response to the objection of that claim as being dependent on a rejected base claim in the Office Action dated November 30, 2005. The Examiner is respectfully requested to confirm this understanding for the record.

The Office Action requires restriction between the following allegedly patentably distinct groups of claims:

1. Group I (Claims 1-50 and 53-97), directed to a method and system for routing data within a switch fabric; and

2. Group II (98-104), directed to synchronizing transmissions.

The Office Action constructively elected Group I (claims 1-50 and 53-97). Applicants acknowledge this election, subject to the following traversal.

The Office Action asserts that Group I and Group II "are related as combination and subcombinations" (MPEP 806.05(c)), and also "are related as

subcombinations disclosed as usable together in a single combination" (MPEP 806.05(d)). However, this reasoning appears contradictory because the first assertion appears to indicate that one of the Groups is a combination whereas the second assertion appears to indicate that both groups are subcombinations. It is not understood how a Group can be both a combination and a subcombination. For these reasons, it is believed that the restriction requirement set forth in the Office Action is improper, and its withdrawal is therefore respectfully requested. Moreover, because the restriction requirement is believed to be improper, and Claims 98-104 were not treated on the merits in the Office Action, it is believed that the "final" status of the Office Action is improper and should be withdrawn.

Claims 1-40 and 43-85 have been allowed. The Examiner is sincerely thanked for that indication.

Claims 90, 91, 96, and 97 were objected to as depending from rejected base claims, but, the Office Action states, those claims would be allowed if rewritten in independent form. The Examiner is thanked for that indication. However, those claims have not been so rewritten at this time because, for the reasons given below, the respective base claims from which they depend are believed to be patentable.

Claim 41 was rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,317,562 (Nardin et al.) in view of U.S. Patent 5,640,389 (Masaki et al.) and U.S. Patent 6,219,352 (Bonomi et al.).

Claim 41 is directed to a method comprising receiving a plurality of cells associated with a first time slot, each cell from the plurality of cells being uniquely

associated with its own cell framer and its own receipt time. Next steps include buffering cells from the plurality of cells as they are received until every one of the plurality of cells is received, and sending the plurality of cells substantially aligned in time, only after every cell from the plurality of cells is received within a timeout period, and not before all of the plurality of cells have been received.

The Office Action cites Nardin et al. as disclosing routing cells in a management switching system wherein the architecture includes an NTC for performing framing, cells are buffered according to priority, and timeout events occur (Abstract, col. 5, line 11 through col. 6, line 55, and col. 8, line 68), and states that "Nardin is silent on multiple framers and sending plurality of cells after every cell from the plurality of cells in [*sic*] received within a timeout period." As was pointed out in the previous Amendment, the cited portions of Nardin et al. relate merely to a network trunk card 182 and interface 184 making up a trunk card network interface group 180, a queue buffer 210 containing four distinct buffer memories for four classes of data: (1) High Priority (HP), (2) High Speed Deterministic (HSD), (3) Low Speed Statistical (LSS), and (4) Voice. HP 212 contains the highest priority data relating to system operation and control, and is granted the highest priority by a server 226. Remaining queues are serviced so as to guarantee minimum bandwidth availability to each data type (see, e.g., col. 5, line 11 to col. 6, line 29). Col. 8, lines 66-68 refers merely to a state table that 'rekicks' (restarts) itself periodically - every 15 seconds, with a timeout event.

Masaki et al. is cited in the Office Action as teaching "communicating and processing packet data wherein the architecture includes plurality of cell framers, switching fabric, wherein a selector distributes plurality of cells to cell framers (Fig. 15, col. 20, line 65 thru col. 21, line 35)." As also was pointed out in the prior-filed Amendment, the cited portion of Masaki et al. relates to a line distributor 1520 which selects output lines A and B in turn (Fig. 15), and outputs from a selector 1540 cells to framers 1541 and 1542. A line distributor 1520 requires only a small amount of buffer memory in framers 1541 and 1542. Priorities can be set so as to give highest priority to connections in which cells containing network control information are inserted, since it is the delay of these cells that has the greatest adverse impact on network performance.

Bonomo et al. is cited in the Office Action as teaching a "switch environment supporting efficient transmission of frames wherein managing of cell routing includes flushing of cells of any incomplete received frames, and ATM switch buffers all cells of a frame until the last cell of a frame is received, then transmits the whole frame as associated with scheduling (substantially aligned in time) (Abstract, col. 5, line 25-47)."

The Abstract of Bonomi et al. refers to a cell received on a multicast connection and transmitted on several branches/ports. Instead of copying a multicast call several times for each output branch, only one copy of each multicast cell is maintained. The cell order and the stored cell data form a physical queue, and several logical queues are maintained, one for each output branch. In one embodiment, linked lists are used to maintain the queues. A cell in a physical queue is deleted after all logical queues traverse

that cell. A shared tail pointer is used for all the logical queues to minimize additional processing and memory requirements due to the usage of logical queues. The queues enable cells forming a frame to be buffered until the end of frame cell is received, which provides for efficient handling of frames.

Col. 5, line 25-47 of Bonomi et al. refers to maintaining a same mask and drop count for all cells of a frame to allow an ATM switch to buffer all cells of a frame until the last cell of a frame is received, and then transmits the whole frame to a consistent set of branches. All the cells may then be transmitted in quick succession. That portion of Bonomi et al. also refers to cells of any incompletely received frames being flushed. If an end-of-frame cell is not received, cells of the partial frame are deleted without transmission on branches.

In support of the rejection of Claim 41, the Office Action states that "it would have been obvious . . . to implement multiple framers as taught by Masaki, as well as, transmitting a complete received frame of cells according to scheduling as taught by Bonomi with the combined teachings of Nardin for the purpose of further managing cell routing and increasing throughput."

However, even if Nardin et al. be deemed to refer to a state table that 'rekicks' (restarts) itself periodically, with a timeout event, and even if Bonomi et al. be deemed to refer to maintaining a same mask and drop count for all cells of a frame to allow an ATM switch to buffer all cells of a frame until the last cell of a frame is received, and then transmitting the whole frame to a consistent set of branches, nothing in either Nardin

et al., Masaki et al., or Bonomi et al. would teach or suggest buffering cells from a plurality of cells associated with a first time slot as they are received until every one of the plurality of cells is received, and sending the plurality of cells *substantially aligned in time*, only after every cell from the plurality of cells is received *within a timeout period*, and not before all of the plurality of cells have been received, as set forth in Claim 41. Indeed, Nardin et al. merely restarts a state table periodically to determine if any connections should be rerouted (col. 8, line 66 to col. 9, line 6), and is not seen to send a plurality of cells *substantially aligned in time*, only after every cell from the plurality of cells *is received within a timeout period.*

Accordingly, Claim 41 is believed to be clearly patentable over Nardin et al., Masaki et al., and Bonomi et al., whether considered separately or in combination.

If, despite the foregoing remarks, the Examiner refuses to withdraw the rejection of Claim 41, she is respectfully requested to point out the specific portion of Nardin et al., Masaki et al., or Bonomi et al., she believes teaches the above-emphasized features of Claim 41.

Claims 87, 89, 93 and 94 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0181455 (Norman et al.) in view of U.S. Patent No. 6,567,396 (Pohjanvouri et al.). Claims 88 and 92 were rejected under 35 U.S.C. 103(a) as being unpatentable over Norman in view of Pohjanvouri et al. and further in view of U.S. Patent Application Publication No. 2003/0048792 (Xu et al.).

Claim 95 was rejected under 35 U.S.C. 103(a) as being unpatentable over Norman et al. in view of Pohjanvouri et al., and further in view of U.S. Patent No. 4,367,549 (Vachee).

Independent Claim 87 recites an apparatus comprising at least one distributed scheduler arranged to receive control information and data from at least one source within randomized time slots, perform arbitration based on the control information, and specify to the at least one source at least one destination to which the at least one source should forward further data associated with the control information.

The Office Action relies on paragraphs 0017, 0018, 0047, and 0048 of Norman et al. to reject Claim 87, and concedes that "Norman is silent on at least one source with randomized time slots."

Paragraphs 0017 and 0018 of Norman et al. refer to a switch fabric with distributed scheduling, arbitration and buffering, and a switch fabric that may be implemented on a chip, including an array of cells and an I/O interface in communication with the array of cells for permitting exchange of data packets between the array of cells and components external to the array of cells. Each cell communicates with at least one other cell of the array, permitting an exchange of data packets between the cells of the array and an exchange of control information between the cells of the array. Each cell is operative to control transmission of data packets to other cells of the array at least in part on a basis of control information, and the control information thus is used to regulate the flow of data packets between cells.

Paragraph 0047 of Norman et al. refers to an interconnect pattern 112 allowing each cell to transmit data to, and receive data from, and access control information from, itself and every other cell of the switch fabric 100 (Fig. 10). Paragraph 0048 refers to Fig. 11 which shows an alternative interconnect pattern 112 in which there are sixteen cells, each having two transmitters and eight receivers. The sixteen cells are arranged in matrix configuration.

The Office Action also relies on col. 3, lines 37-67, col. 4, lines 1-67, col. 7, lines 9-63, and col. 8, lines 7-65 of Pohjanvouri et al. in the rejection of Claim 87. In Pohjanvouri et al., a mobile station purportedly can use a random access opportunity to transmit a data packet even if it already has an existing data connection for which it is awaiting a reserved access opportunity. For example, if a mobile station has an existing data connection and a user has an existing data connection and the station initiates a voice connection, then the station may use either a reserved access time slot or a random access time slot to transmit the voice data packet. Random access opportunities also may be assigned priorities. (See, e.g., col. 3). In Fig. 1, information packets from external networks enter at a GGSN 100. The packet is then routed via backbone network 120 to a SGSN 140, from which packets are routed to a BSS 160 in a dedicated transmission. (See, e.g., col. 4).

The Office Action states that "Pohjanvouri discloses in a data communications system that also utilize managing data in a scheduling environment that includes a BTS receiving data from within randomized time slots (Abstract, a scheduling

system that includes multiple BTS (scheduler) and BSC wherein different random access opportunities are assigned priority so that random access timeslots utilized between mobiles... perform arbitration...." Also, as the paragraph spanning pages 4-5 of the Office Action is understood, the Office Action apparently considers the BSC to be a "source within random timeslot/destination...." Furthermore, page 5 of the Office Action cites cols. 7 and 8 of Pohjanvouri et al. as teaching that "a mobile will wait until it identifies/detects any particular mobile to transmit control data via a random access channel/timeslot", and apparently equates that teaching with the feature in Claim 87 of specifying to at least one source at least one destination to which the at least one source should further forward further data associated with the control information.

However, in Pohjanvouri et al. an address (indicating, e.g., priority or low-end random access opportunities) is assigned to a mobile station, and the station merely waits for a reserved access opportunity associated with the address to transmit payload data. The mobile station then receives control data for transmission, and then transmits that data on a random access opportunity while the station is waiting for the reserved random access opportunity. The mobile station is not understood to specify to the BSC a destination to which the BSC should forward any further data associated with the control information, and instead merely retransmits the *same* control information that is receives, after waiting for a reserved access opportunity associated with an address it received. Indeed, even if Pohjanvouri et al. be deemed to refer to transmitting control data via a random access channel, nothing in has been found, in either Norman et al. or Pohjanvouri

et al., that would teach or suggest *specifying to the at least one source at least one destination to which the at least one source should forward further data associated with the control information*, as set forth in Claim 87. Accordingly, that claim is believed to be patentable over those references, whether considered separately or in combination.

Claim 93 is a method claim corresponding in many respects to apparatus Claim 87, and also is believed to be patentable over Norman et al. or Pohjanvouri et al., whether considered separately or in combination, for substantially the same reasons as is Claim 87.

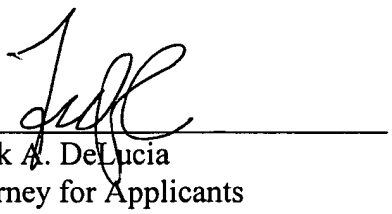
A review of the other art of record has not revealed anything which is understood to remedy the above-noted deficiencies of the references relied on in the Office Action to reject the independent claim herein. Accordingly, those claims are believed to be patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons as are those respective independent claims. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and early passage to issue of the present application.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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